X-38 vehicle uses off-the-shelf technology to reduce cost

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lifeboat. But, as the size of the crew aboard the station increases, a return vehicle like the X-38 that can hold up to six will be needed.

The X-38 design uses a lifting body concept originally developed by the Air Force's X-24A project. Following the jettison of a deorbit engine module, the X-38 would glide from orbit unpowered like the space shuttle and then use a steerable, parafoil parachute, a technology recently developed by the Army, for its final descent to landing. Its landing gear would consist of skids rather than wheels.

"Just because it is off-the-shelf technology doesn't mean it is old technology. Many of the technologies we are using have never before been applied to a human spacecraft," Muratore said. "We are out to prove that we can produce a highly versatile human spacecraft for significantly less cost than has ever been done before."

Although the design could one day be modified for other uses such as a crew transport vehicle, the X-38 would strictly be used as a return vehicle in its current design. It is baselined with only enough life support supplies to last about nine hours flying free of the station in orbit. The spacecraft's landing will be totally automated, although the crew will have the capability to switch to backup systems, control the orientation in orbit, pick a deorbit site, and steer the parafoil, if necessary. The X-38 has a nitrogen gas-fueled attitude control system and uses batteries for power.

The first vehicle airframe was delivered to JSC in September, where it is now being outfitted with avionics, computer systems and other hardware in preparation for drop tests next year at the Dryden Flight Research Center. Full-scale, unpiloted flight tests are to begin in February with "captive carry" flights in which the vehicle will remain attached to the NASA B-52 aircraft. Free-flight drop tests, also unpiloted, are planned for May.

Further testing could include an unpiloted space flight test in early 1999, and the new century could see the ship attached to the International Space Station. It is estimated that the total projected cost of the X-38's development through the completion of two test vehicles could be less than $80 million. About 100 people are working on the project.

"By building this ourselves, we are going to have a better understanding of the problems contractors experience when they build vehicles for us, and we will have a detailed set of requirements for the contractor. Using civil servants is among the most efficient ways to perform a small project like this, as well," Muratore said. "This gets NASA back to its research and development roots, the type of hands-on work that was done when it was NACA, the National Advisory Committee on Aeronautics, before the space age began."

EAA elects new members, sets holiday activities

The November general assembly meeting of the Employees Activities Association elected members and sets dates for holiday activities and the 1997 JSC picnic.

Bob Musgrove was elected as vice president of athletics and Ron Davis was elected vice president of youth activities. Ginger Gibson retained her position as president as did Jessie Gillmore as secretary.

EAA representatives also voted on the location of the JSC annual picnic for 1997 with a unanimous vote for Astroworld. Members also voted to receive a free "Waterworld" ticket with the purchase of a regular picnic ticket, a change from last year's free "Holiday in the Park" ticket. The picnic will be held from 11a.m.-8 p.m. Apr. 6. Tickets will cost $15 for the first 3,100 tickets and $21 after these tickets are sold. Astroworld season pass holders can pay $7 to attend the picnic.

Employees who attended JSC's annual picnic last year may now redeem their free "Holiday in the Park" ticket. The park is open from noon-8 p.m. Saturdays and Sundays until Dec. 21. Starting Dec. 21 and running through Jan. 5, the park will be open every day from noon-8 p.m. On Dec. 31 the park will stay open until midnight and feature a 30-minute show on Main Street near Astroworld's entrance and fireworks to ring in the new year.

The EAA also will sponsor several holiday activities this month.

Tickets are on sale now at the Exchange Store for the Christmas tree sale that will be held at 8:30-11 a.m. Saturday at the Gilruth Center's softball field No. 4. Employees may purchase a ticket for a five to eight foot tree for $18.

Santa will be on hand to greet employees and their children and refreshments will be available. Volunteers are needed to unload trees. To volunteer, call Ann Patterson at x33367.

The Children's Christmas party will be held from 10 a.m.-noon Dec. 14 at the Gilruth Center ballroom and gym. Children will have the opportunity to have their picture taken with Santa along with a variety of other activities. Tickets cost $4 for children and $1 for adults. Tickets are on sale at the Exchange Store until Dec. 12.

For more information on the tree sale or children's party call the Exchange Store at x35350.

The Christmas dance will begin at 7:30 p.m. Dec. 14 at the Gilruth. The Aubrey Tucker Orchestra will perform in the ballroom. Tickets cost $25 and includes a prime rib dinner. Beer and wine will be available at $1.75 and soft drinks for $.50. Tickets are on sale at the Exchange Store. Ticket sales will end at 2 p.m. Wednesday.

The Aubrey Tucker Orchestra also will perform in the Gilruth Center ballroom for the New Year's dinner dance set to begin at 7:30 p.m. Dec. 31. Tickets cost $27.50 and includes a prime rib dinner, party favors and a champagne toast at midnight. Beer and wine will be available at $1.75 and soft drinks for $.50. Tickets are now on sale and will end at 3 p.m. Dec. 27.

For more information on the dances, call Mavis Ilkenhans, 244-9644.

NASA Photo

Wake Shield scientists reported the maximum seven thin film growths of semiconductor material were completed during the three days the satellite flew free of *Columbia* surpassing its major objectives for the mission. The materials were grown in an ultravacuum 100 to 1,000 better than any seen on Earth.

Wake shield surpasses expectations

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future missions that depend on successful operations of the hatch, like Mir visits and our station construction, can proceed without having to worry about that potential problem. We will learn and go on," Jones said.

Jernigan and Jones took advantage of the weightless environment to test a space station power tool they would have used during their space walks on the middeck of *Columbia*.

While disappointed at not being able to fulfill objectives, Jernigan said the successes of the two satellites made up for the hatch problem.

Wake Shield scientists reported the maximum seven thin film growths of semiconductor material were completed during the three days the satellite flew free of *Columbia,* surpassing its major objectives for the mission. The satellite also was perched atop the arm for about six hours as scientists gathered data on using atomic oxygen to grow aluminum oxide films.

"We have had many successes on this flight," Jernigan said. "We had a successful deploy of the ORFEUS-SPAS complement of telescopes on flight day 1 and those telescopes are taking data on stars in our galaxy and many, many exotic astronomical objects so that is a very very exciting and serving program. We had a successful deploy of the Wake Shield whose materials processing facility worked extremely well. In spite of our disappointment about the EVA activity we are still very pleased to be a part of this flight and very pleased with the success of this mission."

Lucid receives top space medal from president for Mir stay

By Natasha Calder

Astronaut Shannon Lucid was recognized by President Clinton this week with the Congressional Space Medal of Honor for her record six-month stay on the Russian Mir Space Station.

The medal, given sparingly for "extraordinary service to the nation," Clinton said, was the first to be bestowed to a woman and a scientist. "Dr. Lucid achieved that kind of service for 188 days this year, the longest flight by an American in space, the longest mission for any woman of any nation in space, five shuttle missions altogether."

With participants from the U.S. and Russia looking on, Lucid gave credit to both countries for the success of the flight, calling the event "a story of two nations, two great space-faring nations that cooperate together and work together, and it's just a foretaste of what can happen in the future."

The partnership with Russia that has allowed the U.S. to have a continued presence in space as part of the Mir crews, is only the beginning of a partnership that will extend into a new era with the upcoming construction of the International Space Station and beyond.

"Her mission did much to cement the alliance in space we have formed with Russia," Clinton said. "It demonstrated that, as we move into a truly global society, space exploration can serve to deepen our understanding, not only of our planet and our universe, but of those who share the Earth with us."

Meanwhile, the current crew of the Russian space station, Mir 22 Commander Valery Korzun, Flight Engineer Alexander "Sasha" Kaleri and Cosmonaut Researcher John Blaha, continues where Lucid and her Mir 21 crewmates—Commander Yuri Onufrienko and Flight Engineer Yuri Usachev—left off. Korzun and Kaleri underwent their first space walk of the mission Monday, leaving the station for almost six hours to install additional solar arrays. The two space walkers hooked up and connected the arrays in an effort to end some occasional power failures experienced by Mir. Blaha remained in Mir, monitoring station functions and taking video of the space walkers.

Blaha and his crewmates also had a chance to greet their fellow space travelers on *Columbia* over the holiday weekend, with each of the crews exchanging well wishes for safe and successful flights.

JSC to feature book sale, computer fair, choirs in Bldg. 3 cafeteria

The JSC Employee Activities Association and the Equal Opportunity Program Office are sponsoring several events in the Bldg. 3 cafeteria this month.

A computer fair will be held from 8 a.m.-4 p.m. today, Monday and Tuesday in the Bldg. 3 cafeteria. Two of the vendors who have been involved with the center's recent computer "block buys" will be participating, and they are offering special deals to employees. There also will be a representative from the Discovery Toys-Software Line that features educational software for kids on Monday and Tuesday during lunch hours.

For more information on the computer fair, call Karl Schuler at x33031 or reference the fair's home page at the following URL: http://hro.jsc.nasa.gov/hro/eaa/The_EAA_Computer_Fair.HTML

The Exchange will be hosting another "Reading is Fun" Book Fair from 8 a.m.-3 p.m. Monday-Wednesday in the Bldg. 3 cafeteria. For details about the book sale call Teresa Sullivan at x38970.

In addition, the EEPO will sponsor Christmas entertainment during lunch time from Dec. 12-20 in the Bldg. 3 cafeteria. The entertainment includes choirs from Austin High School, Worthing High School, C.E. King High School, JSC Patriotic Choir, Bearington Private School and other groups. Again this year, the U.S. Marine Corps will collect toys for the "Toys for Tots" program. JSC employees can drop off their gifts at the JSC Bldg. 3 cafeteria between Dec. 13-20.

These events are open to all NASA civil servants, contractors and retired personnel.

Career Transition Assistant Program can assist buyout employees

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opportunity to take the buyout. Within each of these organizations, if more than 10 percent of the employees apply, approval will be given to administrative professionals first, followed by individuals in staff positions at the directorate or division levels. Next will come employees at remote sites, then senior executive service employees, followed by grades 14 and 15 employees, grade 13 and all others.

"In the case of 'ties' within these groups, approval will be given to employees with the most service, as measured by their Federal service computation dates," Hartman said.

In addition, up to 15 employees centerwide in support staff positions classified in NASA Class Code 500 will be eligible.

Senior Executive Service employees also will be eligible, except those directly involved in Space Flight Operation Contract transition. Employees who serve in staff (e.g., technical assistant, special assistant, etc.) or other individual contributor positions in directorate or division level offices also can take the buyout. Employees with duty stations at Downey, Palmdale, Huntington Beach, and Canoga Park, Calif., Kennedy Space Center and any employee working in a professional administrative position classified in NCC 600 also are eligible.

To apply for the buyout, employees must submit an application, available in Employee Services, Bldg 45, Rm. 140.

If employees are in a category with no limitations (for example, a professional administrative position but not in one of the organizations with a percentage or numerical limitation), they may apply any time through Feb. 3. Upon confirmation of eligibility, employees may separate any time, but no later than Feb. 3.

Applications for employees in a category with limitations must be received by 5 p.m. Dec.13. By Dec. 16, applications will be prioritized and approved.

After Dec. 13, if categories with limitations have not been fully subscribed, applications will be approved on a first-come, first-served basis up to the established limits. Once eligibility is confirmed, employees may separate anytime through Feb. 3.

"There are several important considerations you should take into account as you decide whether or not to take the buyout," Hartman said. "First, you cannot be reemployed by the federal government for the next five years—in either a paid or unpaid status—unless you pay back the full amount of the buyout. Second, you may not enter into a personal services contract with the government. Third, you may take federal health benefits coverage into retirement only if you have been continuously enrolled since March 30, 1994."

JSC's Career Transition Assistant Program out placement center is available to employees for up to six months after leaving. Employees may contact the CTAP at x34300 for more information. Questions about the buyout can be answered by Human Resources Representatives or Employee Services at x32681.

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